

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Phase Diagram of square lattice $S=1$ Mott insulators¹ JULIA WILDEBOER, JONATHAN DEMIDIO, RIBHU KAUL, University of Kentucky — We study the phase diagram of a spin-1 Heisenberg Model with both 2 and 4 spin bilinear-biquadratic interactions on the square lattice. This model can be simulated sign-problem free with means of a Stochastic Series Expansion Quantum Monte Carlo (SSE QMC). We study the competition between the Neel, quadrupolar, valence bond solid and Haldane phases, and the nature of the quantum phase transitions between these states of matter.

¹NSF DMR-1611161, DMR-1056536

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Date submitted: 11 Nov 2016

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